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3 August 1981

MEMORANDUM FOR: Chief, Planning Division, PRS/DDS&T

FROM:

[Redacted]

25X1

Chief, Executive and Planning Staff, FBIS

SUBJECT:

FY-1984 R&D Planning Cycle

[Redacted]

25X1

Attached are FBIS' prioritized FY-1984 R&D requirements. I
 will be glad to supply any additional information you might need.

[Redacted]

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FOR THE DIRECTOR, FBIS:

[Redacted]

25X1

Attachments:
 As stated

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FBIS/E&PS

3 August 1981

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Distribution:

Orig. - Addressee

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Problem Statement

1. FBIS Problem _____
2. Title - Antenna Research
3. Policy Basis - N/A
4. Expected Benefits - Improvement of FBIS collection activities and the reduction of operating costs.
5. Customer - 25X1
6. Problem Description - Carry out an ongoing program of research focused on antennae suitable for the 0.5 to 30 MHz frequency band. Emphasis should be on improved performance in the presence of significant man-made electrical noise under a severe size limitation. Identified antennae types should be adaptable to nonstandard physical environments such as inner city roof tops and small urban yards.
7. Background - FBIS field bureaus are typically located in office buildings and/or residential areas of major cities. The physical limitations imposed by such locations generally forces significant deviations from classical antennae types. These compromises coupled with the high manmade interference environment create a very difficult reception task. One alternate is to locate receivers and more typically antennae at remote locations. Although successful in numerous instances this procedure is more expensive equipment wise, more vulnerable technically, and typically is dependent upon the concurrence of local authorities. It is desirable where possible to bring the entire receiving operation under the control of FBIS.
8. Time Requirements - This is a current and long-range requirement.
9. References - Current remote operations in operation - Data and characters will be supplied by FBIS Engineering.
10. FBIS priority number 1.

Problem Statement

1. FBIS Problem _____
2. Title - Optical Character Reader Technology
3. Policy Basis - N/A
4. Expected Benefits - Availability of Optical Character

Readers (OCR) capable of handling a wide variety of Roman and foreign language fonts can permit FBIS to achieve a dramatic reduction in processing time devoted to foreign press exploitation, provide NFAC analysts the opportunity for original-source text search, and at a later stage offer a data base for application of machine-translation technology.

5. Customer -

25X1

6. Problem Description - A major factor diluting the value of FBIS exploitation of foreign printed media is its dependence on lengthy mailing and pouching of the sources from abroad to the United States and between FBIS and its pool of 700 independent contract translators. Gaps of many weeks, sometimes months, occur between date of original publication and date of publication of the finished translation. Long-range solutions to speeding up the processing of press and document materials require the ability to move press and document materials rapidly between FBIS and contractors and between FBIS bureaus and headquarters. As part of this development a flexible OCR must be developed which can:

- a. Handle a wide variety of languages and type fonts;
- b. Handle a variety of newspaper page sizes;
- c. Handle high-volume processing.

7. Background for Support Activities - OCR technology will be required not only to interface with the project to automate the JPRS production cycle (the Contract Service Order (CSO) System) but also to form an integral part of later plans to automate the FBIS field-processing (text-editing) system.

8. Time Requirement - Technology of this kind will be needed for projects during the 1985-90 period.

9. References - The February 1980 CSO feasibility study done by FBIS ADP Coordinator [] might usefully be reviewed for its tangential relationship. Beyond that, discussions should be held with these FBIS officers: C/E&PS, C/Production Group, the FBIS MIDAS Staff, and ADP Coordinator.

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10. Ranking - FBIS priority number 2.

Problem Statement

1. FBIS Problem _____
2. Title - Analog Speech Compression
3. Policy Basis - N/A
4. Expected Benefits - Solution of this problem will allow better utilization of expensive leased communication lines and receiving facilities and enhance FBIS' real-time processing capability from remote receiving sites.
5. Customer - 25X1
6. Problem Description - FBIS operates several remote receiving sites using leased commercial telephone grade circuits. A high quality analog speech compression device is required which will allow simultaneous transmission of two voice broadcast signals over a single circuit.
7. Background - FBIS uses leased commercial telephone circuits to remotely receive voice broadcast data. These lines are expensive, costing in excess of \$200K for an intercontinental circuit. If the remote receiving site is manned, analog recorders can be used to record the broadcasts and sequentially retransmit them over the leased circuit. In many cases the receiving site will be unmanned, thus precluding the use of analog recorders. The compression of two broadcast channels for transmission over one circuit would permit remote control of the receivers, increase timeliness of information and improve the overall utility of leased circuits without increasing annual lease costs.
8. Time Requirements - The problem solution is currently required and will be required over the next three-five years.
9. References - There are no written references, but discussions should be held with FBIS engineers on current remote operations.
10. FBIS priority number 3.

Problem Statement

1. FBIS Problem _____
2. Title - High-Speed Text-Search Technology
3. Policy Basis - N/A
4. Expected Benefits - Development of an effective high-volume, high-speed text-search capability will permit FBIS to achieve a goal long desired not only by itself but by its thousands of USG users, particularly NFAC: a flexible storage and retrieval system applicable to all its serial publications (Daily Reports, JPRS translations, and Analysis Group products), thus sharply increasing the value of these products for both current reporting and continuing research and analysis.
5. Customer - 25X1
6. Problem Description - Related to FBIS Problem 2 of the FY 1983 R&D Program Call, this problem focuses on the primary obstacle to development of a comprehensive storage/retrieval system: Development of the most effective high-speed text-search technique. Several other ADP applications must precede this within FBIS: completion of MIDAS, completion of automation of the Consolidated Translation Survey (CTS) system, and, of the CSO card system. Research and development should proceed in tandem with these developments, however, so that advances within the industry over the next five years can be properly assessed and applied to the basic storage/retrieval problem when FBIS is in a position to turn its full attention to it. Without attempting to influence R&D efforts in any direction, it is FBIS' understanding that research in the field points toward combining partial inversion of the text data with text-search of the inverted file. Assessment of these and other possible options should begin now.
7. Background for Support Activities - This project would have important applications to Daily Report, JPRS, and Analysis Group retrieval systems in various stages of development.
8. Time Requirement - Research should begin now, looking toward full implementation of the related MIDAS, CTS, and CSO systems by the end of 1984 and proceeding in tandem with the development of FBIS plans for automation of source materials during the 1985-90 period.
9. References - No known written references, but discussions should be held with FBIS Production Group, E&PS, JPRS, FBIS MIDAS Staff, and the FBIS ADP Coordinator.
10. Ranking - FBIS priority number 4.

Problem Statement

1. FBIS Problem _____
2. Title - Radio Reception Prediction/Analysis Methodology
3. Policy Basis - N/A
4. Expected Benefits - Solution of this problem will enhance FBIS decisionmaking for establishing new field collection facilities or technically upgrading existing ones.

5. Customer -



25X1

6. Problem Description - Develop an analysis methodology which will allow FBIS to make better predictions of radio reception from a given location, identify the data base needed to make these predictions and develop an analysis system which permits better utilization of survey data. Areas to be examined include medium and high frequency signal measurement requirements, applicability of radio propagation programs, computer access and suitability of IFRB and other radio transmitter data bases, technical equipment requirements, and computer programs for data analysis and manipulation.

7. Background - FBIS depends on radio interception surveys as the principal technical input for determining new locations for field bureaus and determining upgrade requirements for existing bureaus. The data collected during the survey operation is qualitative. Desired medium and high frequency radio broadcasts are sampled and recorded at various times of the day over a one to two week period. Equipment used to conduct the survey consists of a high quality radio receiver and small inefficient rooftop antennas. Most surveys are staged from a U.S. Embassy or Consulate in an urban environment and local background noise is often high.

This data is then analyzed and conclusions are drawn about the potential for reception at that location. Quantification of this process will produce better judgments for management review and make FBIS less dependent on highly experienced personnel to draw these conclusions. Moreover, a capability to compare signal strength and directionality of target transmitters with similar data for potentially interfering signals radiating into the target area, will enable FBIS to predict reception characteristics of potential sites and thus make more informed choices among locations which appear suitable for on-site technical surveys.

8. Time Requirements - This is a current and long range-requirement.
9. References - None, the S&T project officer should become familiar with the current survey operation.
10. FBIS priority number 5.